

Title (en)

METHOD AND APPARATUS FOR POSITIONING MOBILE DEVICE, AND MOBILE DEVICE

Title (de)

VERFAHREN UND VORRICHTUNG ZUM POSITIONIEREN EINER BEWEGBAREN VORRICHTUNG UND BEWEGBARE VORRICHTUNG

Title (fr)

PROCÉDÉ ET APPAREIL DE POSITIONNEMENT DE DISPOSITIF MOBILE ET DISPOSITIF MOBILE

Publication

**EP 3945336 A1 20220202 (EN)**

Application

**EP 21187971 A 20210727**

Priority

CN 202010744252 A 20200729

Abstract (en)

The present disclosure relates to autonomous driving technology, and provides a method and an apparatus for positioning a movable device, as well as a movable device. The method includes: obtaining point cloud data for a predetermined area above the movable device; extracting, from the point cloud data, a first type of point cloud and a second type of point cloud on a left side and a right side of the movable device, respectively; matching the first type of point cloud and the second type of point cloud to obtain a transform matrix; and determining pose information of the movable device based on the transform matrix. With the above process, the present disclosure can solve the problem in the related art associated with accurate positioning of a movable device when GNSS signals are affected and it is difficult to accurately obtain point cloud data in front of the movable device.

IPC 8 full level

**G01S 7/00** (2006.01); **G01C 21/00** (2006.01); **G01S 17/00** (2020.01); **G01S 19/00** (2010.01); **H04B 7/00** (2006.01); **H04H 40/90** (2008.01)

CPC (source: CN EP US)

**G01C 21/20** (2013.01 - EP); **G01S 7/4808** (2013.01 - EP); **G01S 13/86** (2013.01 - EP); **G01S 13/931** (2013.01 - EP); **G01S 17/06** (2013.01 - CN);  
**G01S 17/42** (2013.01 - EP US); **G01S 17/86** (2020.01 - CN); **G01S 17/89** (2013.01 - EP US); **G01S 17/931** (2020.01 - EP);  
**G01S 19/48** (2013.01 - CN); **G06F 18/21345** (2023.01 - US); **G06F 18/22** (2023.01 - US); **G06V 20/588** (2022.01 - US);  
**G06V 20/653** (2022.01 - EP); **G01S 13/874** (2013.01 - EP); **G01S 2013/9318** (2020.01 - EP)

Citation (search report)

- [XAI] CN 110618434 A 20191227 - UNIV BEIHANG
- [A] ÖZASLAN TOLGA ET AL: "Towards fully autonomous visual inspection of dark featureless dam penstocks using MAVs", 2016 IEEE/RSJ INTERNATIONAL CONFERENCE ON INTELLIGENT ROBOTS AND SYSTEMS (IROS), IEEE, 9 October 2016 (2016-10-09), pages 4998 - 5005, XP033012084, DOI: 10.1109/IROS.2016.7759734
- [A] LI MENGGANG ET AL: "Efficient Laser-Based 3D SLAM for Coal Mine Rescue Robots", IEEE ACCESS, vol. 7, 24 December 2018 (2018-12-24), pages 14124 - 14138, XP011709853, DOI: 10.1109/ACCESS.2018.2889304
- [A] ZHANG SHAOJIANG ET AL: "Lidar-IMU and Wheel Odometer Based Autonomous Vehicle Localization System", 2019 CHINESE CONTROL AND DECISION CONFERENCE (CCDC), IEEE, 3 June 2019 (2019-06-03), pages 4950 - 4955, XP033614711, DOI: 10.1109/CCDC.2019.8832695
- [A] MARTIN MAGNUSSON ET AL: "Scan registration for autonomous mining vehicles using 3D-NDT", JOURNAL OF FIELD ROBOTICS, vol. 24, no. 10, 1 January 2007 (2007-01-01), US, pages 803 - 827, XP055646213, ISSN: 1556-4959, DOI: 10.1002/rob.20204

Cited by

CN117928680A

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

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BA ME

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